

AMENDMENTS TO THE CLAIMS:

Please amend Claims 1 and 15 and cancel Claims 2, 4-6, 9, 14, 21-28, 31 and 32 as set forth below. This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A light-weight active mirror, comprising:

a first layer having a front side and a back side;

a second layer having a front side and a back side, the back side of the second layer facing the front side of the first layer;

a reflective surface disposed on the front side of the second layer, the reflective surface operable to reflect desired wavelengths of electromagnetic radiation;

a plurality of electroactive actuator strips arranged between and connected with the first layer and the second layer and operable to alter a curvature of the mirror;

electrical connectors coupled with the electroactive actuator strips and operable to cause the electroactive actuator strips to alter the curvature of the mirror;

a plurality of stiffening elements interconnected with at least one of the first layer and the second layer and operable to stiffen the mirror; and

a plurality of shape retaining elements attached to at least one of the first layer and the second layer and comprising a material having a shape-retaining property operable to deploy the mirror and to bias the mirror in a desired position;

wherein the shape-retaining elements comprise a shape memory alloy.

2. (Canceled)

3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Original) The mirror according to claim 1, wherein the first layer has a thickness of about $2\ \mu\text{m}$ to about $10\ \mu\text{m}$.
8. (Original) The mirror according to claim 1, wherein the first layer has a thickness of about $5\ \mu\text{m}$.
9. (Canceled)
10. (Canceled)
11. (Original) The mirror according to claim 1, wherein the second layer has a thickness of about $1\ \mu\text{m}$ to about $5\ \mu\text{m}$.
12. (Original) The mirror according to claim 1, wherein the second layer has a thickness of about $2\ \mu\text{m}$.
13. (Original) The mirror according to claim 1, wherein the shape-retaining elements comprise strips symmetrically arranged on and extending substantially entirely across the front side of the first layer.
14. (Canceled)

15. (Currently Amended) The mirror according to claim 1[[14]], wherein the shape memory alloy comprises NiTiNOL.

16. (Previously Presented) The mirror according to claim 1, wherein the electrical connectors comprise:

a plurality of negative electrodes attached to one of the front side of the first layer and the back side of the second layer;

a plurality of positive electrodes attached to one of the front side of the first layer and the back side of the second layer to which the negative electrodes are not attached; and

a plurality of contact pads attached to the front side of the first layer and the back side of the second layer and electrically connected to the negative electrodes and the positive electrodes.

17. (Original) The mirror according to claim 16, wherein each electroactive actuator strip contacts at least one contact pad on at least one of the top layer and the bottom layer.

18. (Original) The mirror according to claim 16, wherein the positive electrodes and the negative electrodes comprise copper.

19. (Original) The mirror according to claim 1, wherein the mirror has a thickness of about 9 μ m to about 12 μ m.

20. (Original) The mirror according to claim 1, wherein the mirror has a thickness of about 12 μ m.

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Original) The mirror according to claim 1, wherein the mirror has an average density of about 2 to about 5 grams per cubic centimeter.

30. (Original) The mirror according to claim 1, wherein the mirror has an average density of about 2 grams per cubic centimeter.

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. (Previously Presented) A light-weight active mirror, comprising:

a first layer having a front side and a back side;

a second layer having a front side and a back side, the back side of the second layer facing the front side of the first layer;

a reflective surface disposed on the front side of the second layer, the reflective surface operable to reflect desired wavelengths of electromagnetic radiation;

a plurality of electroactive actuator strips arranged between and connected with the first layer and the second layer and operable to alter a curvature of the mirror;

electrical connectors coupled with the electroactive actuator strips and operable to cause the electroactive actuator strips to alter the curvature of the mirror;

a plurality of stiffening elements interconnected with at least one of the first layer and the second layer and operable to stiffen the mirror; and

a plurality of shape retaining elements attached to at least one of the first layer and the second layer and operable to deploy the mirror and to bias the mirror in a desired position;

wherein the shape-retaining elements comprise strips symmetrically arranged on and extending substantially entirely across the front side of the first layer.

39. (Previously Presented) A light-weight active mirror, comprising:

a first layer having a front side and a back side;

a second layer having a front side and a back side, the back side of the second layer facing the front side of the first layer;

a reflective surface disposed on the front side of the second layer, the reflective surface operable to reflect desired wavelengths of electromagnetic radiation;

a plurality of electroactive actuator strips arranged between and connected with the first layer and the second layer and operable to alter a curvature of the mirror;

electrical connectors coupled with the electroactive actuator strips and operable to cause the electroactive actuator strips to alter the curvature of the mirror;

a plurality of stiffening elements interconnected with at least one of the first layer and the second layer and operable to stiffen the mirror; and

a plurality of shape retaining elements attached to at least one of the first layer and the second layer and operable to deploy the mirror and to bias the mirror in a desired position;

wherein the shape-retaining elements comprise a shape memory alloy.

40. (Previously Presented) The mirror according to claim 39, wherein the shape memory alloy comprises NiTiNOL.

41. (Previously Presented) A light-weight active mirror, comprising:

a first layer having a front side and a back side;

a second layer having a front side and a back side, the back side of the second layer facing the front side of the first layer;

a reflective surface disposed on the front side of the second layer, the reflective surface operable to reflect desired wavelengths of electromagnetic radiation;

a plurality of electroactive actuator strips arranged between and connected with the first layer and the second layer and operable to alter a curvature of the mirror;

electrical connectors coupled with the electroactive actuator strips and operable to cause the electroactive actuator strips to alter the curvature of the mirror;

a plurality of stiffening elements interconnected with at least one of the first layer and the second layer and operable to stiffen the mirror; and

a plurality of shape retaining elements attached to at least one of the first layer and the second layer and operable to deploy the mirror and to bias the mirror in a desired position;

wherein the electrical connectors comprise:

a plurality of negative electrodes attached to one of the front side of the first layer and the back side of the second layer;

a plurality of positive electrodes attached to one of the front side of the first layer and the back side of the second layer to which the negative electrodes are not attached; and

a plurality of contact pads attached to the front side of the first layer and the back side of the second layer and electrically connected to the negative electrodes and the positive electrodes.

42. (Previously Presented) The mirror according to claim 41, wherein each electroactive actuator strip contacts at least one contact pad on at least one of the top layer and the bottom layer.

43. (Previously Presented) The mirror according to claim 41, wherein the positive electrodes and the negative electrodes comprise copper.